

Table B.4

Electron Configurations of the Elements

| Elements | | Sublevels | | | | | | | | | | | | | | | | | | |
|----------|------------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | 1s | 2s | 2p | 3s | 3p | 3d | 4s | 4p | 4d | 4f | 5s | 5p | 5d | 5f | 6s | 6p | 6d | 7s | 7p |
| 1 | Hydrogen | 1 | | | | | | | | | | | | | | | | | | |
| 2 | Helium | 2 | | | | | | | | | | | | | | | | | | |
| 3 | Lithium | 2 | 1 | | | | | | | | | | | | | | | | | |
| 4 | Beryllium | 2 | 2 | | | | | | | | | | | | | | | | | |
| 5 | Boron | 2 | 2 | 1 | | | | | | | | | | | | | | | | |
| 6 | Carbon | 2 | 2 | 2 | | | | | | | | | | | | | | | | |
| 7 | Nitrogen | 2 | 2 | 3 | | | | | | | | | | | | | | | | |
| 8 | Oxygen | 2 | 2 | 4 | | | | | | | | | | | | | | | | |
| 9 | Fluorine | 2 | 2 | 5 | | | | | | | | | | | | | | | | |
| 10 | Neon | 2 | 2 | 6 | | | | | | | | | | | | | | | | |
| 11 | Sodium | 2 | 2 | 6 | 1 | | | | | | | | | | | | | | | |
| 12 | Magnesium | 2 | 2 | 6 | 2 | | | | | | | | | | | | | | | |
| 13 | Aluminum | 2 | 2 | 6 | 2 | 1 | | | | | | | | | | | | | | |
| 14 | Silicon | 2 | 2 | 6 | 2 | 2 | | | | | | | | | | | | | | |
| 15 | Phosphorus | 2 | 2 | 6 | 2 | 3 | | | | | | | | | | | | | | |
| 16 | Sulfur | 2 | 2 | 6 | 2 | 4 | | | | | | | | | | | | | | |
| 17 | Chlorine | 2 | 2 | 6 | 2 | 5 | | | | | | | | | | | | | | |
| 18 | Argon | 2 | 2 | 6 | 2 | 6 | | | | | | | | | | | | | | |
| 19 | Potassium | 2 | 2 | 6 | 2 | 6 | | 1 | | | | | | | | | | | | |
| 20 | Calcium | 2 | 2 | 6 | 2 | 6 | | 2 | | | | | | | | | | | | |
| 21 | Scandium | 2 | 2 | 6 | 2 | 6 | 1 | 2 | | | | | | | | | | | | |
| 22 | Titanium | 2 | 2 | 6 | 2 | 6 | 2 | 2 | | | | | | | | | | | | |
| 23 | Vanadium | 2 | 2 | 6 | 2 | 6 | 3 | 2 | | | | | | | | | | | | |
| 24 | Chromium | 2 | 2 | 6 | 2 | 6 | 5 | 1 | | | | | | | | | | | | |
| 25 | Manganese | 2 | 2 | 6 | 2 | 6 | 5 | 2 | | | | | | | | | | | | |
| 26 | Iron | 2 | 2 | 6 | 2 | 6 | 6 | 2 | | | | | | | | | | | | |
| 27 | Cobalt | 2 | 2 | 6 | 2 | 6 | 7 | 2 | | | | | | | | | | | | |
| 28 | Nickel | 2 | 2 | 6 | 2 | 6 | 8 | 2 | | | | | | | | | | | | |
| 29 | Copper | 2 | 2 | 6 | 2 | 6 | 10 | 1 | | | | | | | | | | | | |
| 30 | Zinc | 2 | 2 | 6 | 2 | 6 | 10 | 2 | | | | | | | | | | | | |
| 31 | Gallium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 1 | | | | | | | | | | | |
| 32 | Germanium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 2 | | | | | | | | | | | |
| 33 | Arsenic | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 3 | | | | | | | | | | | |
| 34 | Selenium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 4 | | | | | | | | | | | |
| 35 | Bromine | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 5 | | | | | | | | | | | |
| 36 | Krypton | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | | | | | | | | | | | |
| 37 | Rubidium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | | | 1 | | | | | | | | |
| 38 | Strontium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | | | 2 | | | | | | | | |
| 39 | Yttrium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 1 | | 2 | | | | | | | | |
| 40 | Zirconium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 2 | | 2 | | | | | | | | |
| 41 | Niobium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 4 | | 1 | | | | | | | | |
| 42 | Molybdenum | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 5 | | 1 | | | | | | | | |
| 43 | Technetium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 5 | | 2 | | | | | | | | |
| 44 | Ruthenium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 7 | | 1 | | | | | | | | |
| 45 | Rhodium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 8 | | 1 | | | | | | | | |
| 46 | Palladium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | | | | | | | | | |

Table B.4

| Electron Configurations of the Elements (cont.) | | | | | | | | | | | | | | | | | | | |
|---|--------------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Elements | | Sublevels | | | | | | | | | | | | | | | | | |
| | | 1s | 2s | 2p | 3s | 3p | 3d | 4s | 4p | 4d | 4f | 5s | 5p | 5d | 5f | 6s | 6p | 6d | 7s |
| 47 | Silver | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 1 | | | | | | | |
| 48 | Cadmium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | | | | | | | |
| 49 | Indium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | 1 | | | | | | |
| 50 | Tin | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | 2 | | | | | | |
| 51 | Antimony | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | 3 | | | | | | |
| 52 | Tellurium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | 4 | | | | | | |
| 53 | Iodine | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | 5 | | | | | | |
| 54 | Xenon | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | 6 | | | | | | |
| 55 | Cesium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | 6 | | | 1 | | | |
| 56 | Barium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | 6 | | | 2 | | | |
| 57 | Lanthanum | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | | 2 | 6 | 1 | | 2 | | | |
| 58 | Cerium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 1 | 2 | 6 | 1 | | 2 | | | |
| 59 | Praseodymium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 3 | 2 | 6 | | | 2 | | | |
| 60 | Neodymium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 4 | 2 | 6 | | | 2 | | | |
| 61 | Promethium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 5 | 2 | 6 | | | 2 | | | |
| 62 | Samarium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 6 | 2 | 6 | | | 2 | | | |
| 63 | Europium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 7 | 2 | 6 | | | 2 | | | |
| 64 | Gadolinium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 7 | 2 | 6 | 1 | | 2 | | | |
| 65 | Terbium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 9 | 2 | 6 | | | 2 | | | |
| 66 | Dysprosium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 10 | 2 | 6 | | | 2 | | | |
| 67 | Holmium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 11 | 2 | 6 | | | 2 | | | |
| 68 | Erbium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 12 | 2 | 6 | | | 2 | | | |
| 69 | Thulium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 13 | 2 | 6 | | | 2 | | | |
| 70 | Ytterbium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | | | 2 | | | |
| 71 | Lutetium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 1 | | 2 | | | |
| 72 | Hafnium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 2 | | 2 | | | |
| 73 | Tantalum | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 3 | | 2 | | | |
| 74 | Tungsten | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 4 | | 2 | | | |
| 75 | Rhenium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 5 | | 2 | | | |
| 76 | Osmium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 6 | | 2 | | | |
| 77 | Iridium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 7 | | 2 | | | |
| 78 | Platinum | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 9 | | 1 | | | |
| 79 | Gold | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 1 | | | |
| 80 | Mercury | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | | | |
| 81 | Thallium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 1 | | |
| 82 | Lead | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 2 | | |
| 83 | Bismuth | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 3 | | |
| 84 | Polonium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 4 | | |
| 85 | Astatine | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 5 | | |
| 86 | Radon | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 6 | | |
| 87 | Francium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 6 | | 1 |
| 88 | Radium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 6 | | 2 |
| 89 | Actinium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 6 | 1 | 2 |
| 90 | Thorium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | | 2 | 6 | 2 | 2 |
| 91 | Protactinium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 2 | 2 | 6 | 1 | 2 |
| 92 | Uranium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 3 | 2 | 6 | 1 | 2 |

Table B.4

Electron Configurations of the Elements (cont.)

| Elements | | Sublevels | | | | | | | | | | | | | | | | | | |
|----------|---------------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | 1s | 2s | 2p | 3s | 3p | 3d | 4s | 4p | 4d | 4f | 5s | 5p | 5d | 5f | 6s | 6p | 6d | 7s | 7p |
| 93 | Neptunium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 4 | 2 | 6 | 1 | 2 | |
| 94 | Plutonium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 6 | 2 | 6 | | 2 | |
| 95 | Americium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 7 | 2 | 6 | | 2 | |
| 96 | Curium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 7 | 2 | 6 | 1 | 2 | |
| 97 | Berkelium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 9 | 2 | 6 | | 2 | |
| 98 | Californium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 10 | 2 | 6 | | 2 | |
| 99 | Einsteinium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 11 | 2 | 6 | | 2 | |
| 100 | Fermium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 12 | 2 | 6 | | 2 | |
| 101 | Mendelevium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 13 | 2 | 6 | | 2 | |
| 102 | Nobelium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | | 2 | |
| 103 | Lawrencium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 1 | 2 | |
| 104 | Rutherfordium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 2 | 2 | |
| 105 | Dubnium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 3 | 2 | |
| 106 | Seaborgium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 4 | 2 | |
| 107 | Bohrium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 5 | 2 | |
| 108 | Hassium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 6 | 2 | |
| 109 | Meitnerium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 7 | 2 | |
| 110 | Darmstadtium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 9 | 1 | |
| 111 | Unununium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 1 | |
| 112 | Ununbium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 2 | |
| 114 | Ununquadium | 2 | 2 | 6 | 2 | 6 | 10 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 14 | 2 | 6 | 10 | 2 | 2 |